

Eagle Rock, 16th; Escanaba, 6th; Port Huron, 5th, 6th, 10th, 21st, 23d; Oswego and Mt. Washington, 7th; Thornville, Mich., 6th, 21st, 22d, 24th; Friendship, N. Y., 22d; Dyberry, Pa., and Port Jervis and Watertown, N. Y., 7th; Coalville, Utah, 22d.

*Ice.*—The only station reporting its formation during the month was Mt. Washington on the following dates: 3d, 4th, 5th, 6th.

*Table of Maximum and Minimum Temperatures for June, 1881.*

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.			State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.		Station.	Max.	Min.	Station.	Max.	Min.
Alabama.....	Montgomery.....	108°	61°	Green Springs.....	60°		Missouri.....				Sedalia.....		51°
Arizona.....	Florence.....	113°	44°	Maricopa.....	113°		Montana.....	Fort Keogh.....	104°				
Arkansas.....	Little Rock.....	97°	65°				Do.....	Fort Benton.....	98°	27°			
California.....	Visalia.....	103°		Ft. Yuma.....	110°		Nebraska.....	Omaha.....	98°		Lincoln.....	108°	
Do.....	Campo.....		30°				Do.....	North Platte.....	49°				
Colorado.....	Denver.....	93°		Ft. Lyon.....	105°		Nevada.....	Winnemucca.....	93°	34°	Halleck.....	108°	
Do.....	Pike's Peak.....		20°				Do.....				Battle Mountain.....		28°
Connecticut.....	New Haven.....	80°	45°				N. Hampshire.....	M. Washington.....	98°	16°	Antrim.....	97°	
Dakota.....	Ft. Meade.....	103°		Ft. Peñita.....	37°		New Jersey.....	Atlantic City.....	93°		Vineland.....	94°	
Do.....	Deadwood and Ft. Stevenson.....		42°				Do.....	Barneget.....	48°		Freehold.....		47°
Delaware.....	Breakwater.....	89°	55°	Dover.....	90°		New Mexico.....	La Moñilla.....	108°		Ft. Wingate.....		41°
Dist. Columbia.....	Washington.....	94°	54°				Do.....	Sante Fé.....	43°				
Florida.....	Jacksonville.....	96°		Houston.....	100°		New York.....	Rochester.....	89°		Madison B'ks.....		31°
Do.....	Pensacola.....		64°	St. Augustine.....	62°		Do.....	Buffalo.....	42°				
Georgia.....	Augusta.....	102°		Forsyth.....	104°		North Carolina.....	Charlotte.....	97°	55°	Weldon.....	99°	
Do.....	Atlanta.....		56°	M'Pherson Bks.....	53°		Do.....	Cincinnati.....	94°		Highlands.....		46°
Iowa.....	Des Moines.....	96°		Guttenburg.....	100°		Do.....	Cleveland and Toledo.....	48°		College Hill.....	100°	
Do.....	Dubuque and Davenport.....		51°	Muscatine.....	40°		Do.....	Umatilla.....	94°		Westerville.....		43°
Idaho.....	Ft. Lapwai.....	97°					Do.....	Roseburg.....	41°				
Do.....	Eagle Rock.....		35°				Pennsylvania.....	Pittsburg.....	90°	48°	Philadelphia.....	96°	
Illinois.....	Cairo.....	95°		Swanwick.....	97°		Do.....				Franklin and Wellsboro.....		32°
Do.....	Champaign.....		48°	Riley.....	43°		Do.....						
Indiana.....	Indianapolis.....	92°	48°	Laconia.....	90°		Rhode Island.....	Newport.....	82°	45°			
Do.....				Spiceland.....	46°		South Carolina.....	Charleston.....	97°	64°			
Indian Ty.....	Fort Sill.....	105°					Tennessee.....	Memphis.....	100°				
Do.....	Fort Supply.....		50°				Do.....	Knoxville.....	53°				
Kansas.....	Leavenworth.....	97°	57°	Ft. Wallace.....	104°	42°	Texas.....	Fort Davis.....	111°	9°	Camp near Presidio.....	114°	
Kentucky.....	Louisville.....	95°	54°	Bowling Green.....	96°		Utah.....	Salt Lake City.....	96°	47°	Promontory.....	102°	
Louisiana.....	Shreveport.....	102°	86°				Do.....				Coalville.....		31°
Maine.....	Portland.....		81°	Corinth.....	82°		Do.....				Charlotte.....	89°	
Do.....	Eastport.....		38°	Ft. Preble.....	36°		Vermont.....	Burlington.....	84°	38°	Woodstock.....		31°
Maryland.....	Baltimore.....	92°	55°	Cumberland and Emmitsburg.....	50°		Do.....				Wytheville.....		44°
Do.....				Somerset.....	21°		Virginia.....	Norfolk.....	89°				
Massachusetts.....	Boston.....	86°		South Lee.....	33°		Do.....	Fort Myer.....	48°				
Do.....	Thatcher's Island.....		0°	Northport.....	92°		Washington Ty.....	Colfax.....	91°				
Michigan.....	Detroit.....	86°					Do.....	Dayton.....	36°	49°			
Do.....	Marquette.....		31°				West Virginia.....	Morgantown.....	82°	49°	Helvetia.....	86°	
Minnesota.....	St. Paul.....	92°					Do.....				Flemington.....		42°
Do.....	St. Vincent.....		37°				Wisconsin.....	La Crosse.....	92°		Mission House.....		42°
Mississippi.....	Vicksburg.....	101°	69°	Fayette.....	68°		Do.....	Milwaukee.....	44°				
Missouri.....	St. Louis.....	96°	53°	Brownsville.....	104°		Wyoming.....	Cheyenne.....	97°	43°	Ft. Fetterman.....	102°	
							Do.....				Ft. Bridger.....		28°

## PRECIPITATION.

The general distribution of rain-fall for June, 1881, is shown on chart No. III, from the reports of over 500 stations. From the table in the left hand corner of the chart is obtained a monthly average for each of the various districts, determined from the records (covering a period of many years) of Signal Service stations, and also a comparison of the present month with such averages. Upon examination of the chart and a comparison with the records of June for previous years, there is found a marked deficiency over the southern half of the country east of the 100th meridian. Other deficiencies are found in the Lower Missouri valley, Minnesota and Upper Lakes. The greatest deficiency occurred in the West Gulf states and Texas, where (particularly in the latter) a period of almost unprecedented drought occurred. There was a marked deficiency in the South Atlantic states, —2.40 inches, but no reports of special suffering from drought are at hand. The excess of rain-fall was most marked from Canada southeastward to the Atlantic, over a portion of which region exceedingly heavy floods occurred. Slight excesses were reported in the Ohio, Upper Mississippi and Upper Missouri valleys, although there were many isolated cases of unusually heavy rain-falls. Along the Pacific coast the range is from normal in the South Pacific region to +1.34 inches in the North Pacific region.

In connection herewith the following notes from voluntary observers are of interest: *Canada:* Montreal, McGill College, monthly rain-fall 1.62 inches below mean of past 6 years. *Illinois:* Riley, rain-fall 1.60 above mean of past 20 years, and has only been exceeded three times during that period, viz.: in 1865, 1868 and 1869. *Iowa:* Clinton, monthly rain-fall above the mean for many years; month remarkable for unusually heavy rains. Ft. Madison, month very wet. *Maine:* Gardiner, monthly rain-fall 0.12 below mean of past 45 years; first 25 days of month very dry. *Maryland:* monthly rain-fall above the mean for past 10 years. *Missouri:*

St. Louis, "Missouri Weather Service" reports a deficiency of 2.16. *Nebraska*: Lincoln, "Nebraska Weather Service" reports average for entire State at 5.31, or 0.76 more than in June, 1880, and but a small fraction less than the average of June for the past fifteen years; rain was generally local and irregular, but it fell somewhere in the State on every day in the month except the 3d, 13th, 14th, 15th, 17th, 27th, 28th. *New Hampshire*: Contoocookville, monthly rain-fall 0.25 below mean of past 11 years. Auburn, wettest June for many years. *New Jersey*: Paterson, monthly rain-fall 7.67 above mean of 50 years. *New York*: North Volney, monthly rain-fall 0.62 below mean of past 8 years; largest rain-fall, 5.55, occurred in 1874; smallest, 2.00, occurred in 1873. Palermo, monthly rain-fall 0.90 below the mean of past 20 years; largest rain-fall, 8.89, occurred in 1865; smallest, 0.70, occurred in 1864 and 1870. *Ohio*: Cleveland, monthly rain-fall 4.38 above mean of past 27 years; largest rain-fall, 10.33, occurred in 1855; smallest, 0.34, occurred in 1861. *Texas*: Clarksville, monthly rain-fall below the mean of several years; crops suffering severely from drought. *Virginia*: Wytheville, monthly rain-fall 0.40 below the mean of past 18 years; largest rain-fall, 9.00, occurred in 1875; smallest, 2.00, occurred in 1869 and 1879.

*Special Heavy Rains.*—2d, Franklin, N. C., 2.20 inches. 3d and 4th, New Shoreham, R. I., 3.93. 5th and 6th, Des Moines, 4.56. 6th, Geneseo, Ill., 2.80; Monticello, Iowa, 2.25; Champaign, Ill., 2.01; Clinton, Iowa, 2.16. 7th, College Hill, Ohio, 2.00; Elmira, Ill., 2.50; New Corydon, Ind., 2.55; Rockford, Ill., 2.05; Wooster, Ohio, 2.30; Morrison, Ill., 3.00; Muscatine, 2.04; Le Claire, 3.03. 7th and 8th, Niles, Mich., 4.90; Wellsboro, Pa., 5.06. 8th, Milton, Pa., 2.90; Vevay, Ind., 3.50; St. Augustine, Fla., 2.60. 8th and 9th, Franklin, Pa., 5.81. 9th, Owing's Mills, Md., 2.24; Fallston, Md., 3.85; Fallsington, Pa., 2.00; New Castle, Pa., 3.60; Hudson, Ohio, 3.50; Cleveland, 3.50; Lynchburg, 2.06; Pittsburg, 2.52; Sandusky, 2.22; Cleveland, 3.01; Ft. Hamilton, N. Y., 2.30; Murphy, N. C., 2.10; Graham, Tex., 2.10. 9th and 10th, Paterson, N. J., 7.10; Little Rock, Ark., 3.25; New Shoreham, R. I., 6.27. 10th, Woodstock, Md., 2.80; Flushing, N. Y., 2.50; Boston, 4.36; Newport, R. I., 2.91; Wood's Holl, 2.84; New York, 2.37; Blooming Grove, Pa., 2.10; Thatcher's Island, Mass., 3.76; White Plains, N. Y., 3.15; Chambersburg, Pa., 2.37. 11th, Fall River, Mass., 4.70; Ardenia, N. Y., 2.85; Westborough, Mass., 2.15; Moorhead, Minn., 2.15; Ames, Iowa, 2.08; Dodge Mine, N. J., 3.30; Elizabeth, N. J., 3.80; Ft. Columbus, N. Y., 2.98. 12th, Brunswick, Mo., 2.00. 13th, College Hill, Ohio, 3.00. 17th, Margaretta, Ohio, 2.28; Ruggles, Ohio, 2.50; Sandusky, 2.20. 19th, Keokuk, Iowa, 2.94; Evansville, Ind., 3.40. 19th and 20th, Des Moines, 5.14. 20th, Woodstock, Md., 3.00; Lynchburg, Va., 2.16. 21st, Key West, 2.13; Brunswick, Mo., 3.00. 22d, Smithville, Dak., 3.50. 22d and 23d, Independence, Kan., 4.52. 23d, Yates Centre, Kan., 2.03. 24th and 25th, Independence, Kan., 4.14. 27th, Sandy Springs, Md., 2.32; Washington, D. C., 2.59. 28th, Mt. Washington, 2.22. 30th, Laconia, Ind., 2.70.

*Largest Monthly Rain-falls.*—Wellsboro, Pa., 17.47 inches; Des Moines, 15.79; Antrim, N. H., 14.00; Flemington, N. J., 13.62; New Shoreham, 12.93; Paterson, N. J., 11.74; Smithville, 11.60; Independence, Kan., 11.26; Ft. Madison, Iowa, 10.50; Le Claire, Iowa, 10.42; New Corydon, Ind., 10.40; Muscatine, Iowa, 10.35; Sandusky, 10.09; Milton, Pa., 10.08; Morrison, Ill., 9.79; Franklin, Pa., 9.33; Oil City, Pa., 9.10; Brunswick, Mo., 9.03; Springfield, Mass., 9.07; College Hill, Ohio, 9.00; Confluence, Pa., 8.79; Meadville, Pa., 8.72; Keokuk, 8.70; New Castle, Pa., 8.40; Elmira, Ill., 8.36; Clinton, Iowa, 8.18; Johnsonstown, Va., 8.15; Catawissa, Pa., 8.08; Cleveland, Ohio, 8.07; Margaretta, Ohio, 7.98; Monticello, Iowa, 7.96; Danport, 7.94; Fallston, Md., 7.86; Evansville, Ind., 7.85; Niles, Mich., 7.83; Cincinnati, 7.82; Baltimore, 7.81; Emmitsburg, Md., and Boston, 7.79; Freehold, N. J., 7.78; Macon, 7.71; Woodstock, Md., 7.60; Dubuque, 7.56; Thatcher's Island, 7.51; Keswick, Va., 7.50; Key West, 7.47; New Geneva, Pa., 7.43; Somerset, Mass., 7.38; Sandy Springs, Md., 7.33; Fall River, Mass., 7.26; Peoria, Ill., and Litchfield, Mich., 7.20; Laconia, Ind., 7.19; Wellsburg, W. Va., 7.15; Grand Junction, Iowa, 7.05; Coldwater, Mich., and Mt. Washington, 7.03; Austin, Tenn., and Louisville, 7.00; Independence, Ia., 6.95; Hamilton, N. Y., 6.82; Sandy Hook, 6.80; Ames, Ia., 6.70; Ft. McHenry, Md., 6.60; New Harmony, Ind., 6.45; Rockford, Ill., 6.44; Morriston, Dak., and Owings Mills, Md., 6.30; Wood's Holl, 6.25; New York, 6.23; Barnegat, 6.18; Geneseo, Ill., 6.00.

*Smallest Monthly Rain-falls.*—Visalia, Los Angeles, Oakland, Tracy, Stockton, Alta, Chico, Antioch, Brentwood, Tulare, Delano, Keene, Tehachapi, Indio, Lemoore, Lathrop, Boca, Byron, Modesto, Turlock, Kingsbury, Goshen, Sumner, Caliente, Mojave, Ravenna, Newhall, San Fernando, Spadra, Colton, White Water, Anaheim, Corpus Christi, and San Geronio, Cal.; Wadsworth, Hot Springs, Carlin, Elko, Halleck, Otego, Toano, Reno, Golconda, Beowawe, Palisade, Tecoma, and Terrace, Nev.; Promontory and Blue Creek, Utah; Texas Hill, Maricopa, Casa Grande, Ft. Thomas, Pantano, San Carlos, Phoenix, Florence and Tucson, Ariz.; Ft. Wingate and Shakespeare, N. M.; Davis, Eagle Pass, Laredo, Rio Grande, Santa Maria, Corsicana, Mason, Derison, Fredericksburg, Ft. Brown and Austin, Tex.; and Ft. Lewis, Col., none; Yuma, Ft. Verde, Prescott, Wickenburg and Ft. Grant, Ariz.; Castroville, Brownsville, San Antonio and Indianola, Tex.; Pagosa Springs, Col.; Fresno, Cal.; and Ft. Washakee, Wyo., trace; Brackettville and Decatur, Tex., Browns, Nev., and Hermosa, Col., 0.01 inch; Benson and Tennant, Cal.,

and El Paso, Tex., 0.02; Ft. McDermitt, Nev., and Pioche and Galveston, Tex., 0.03; Livermore and Campo, Cal., Almoda, Wash. Ty., and Jacksboro, Tex., 0.04; San Diego, 0.05; McKavett, Tex., 0.07; Merced, Cal., and Santa Fé, 0.08; Denver and Ft. Griffin, 0.09; Ft. Elliott, Tex., Holister, Solidad and Farmington, Cal., 0.10; Brighton and San Jose, Cal., 0.12; Dunnigan and Rocklin, Cal., and Humboldt, Nev., 0.15; Ft. Douglas, Utah, 0.16; Benecia Barracks, Cal., 0.18; Williams and Monterey, Cal., and Ft. Lyon, Col., 0.20; Ft. Sill, Ind. Ty., and Martinez, Cal., 0.21; San Mateo, Cal., and Ft. Garland, Col., 0.22; Menlo Park, Cal., 0.24; Clarksville, Tex., 0.25; Pleasonton, Cal., 0.26; Concho, Tex., 0.27; Salt Lake City, 0.28; Boise City, 0.29; Ft. Union, N. M., 0.30; Rio Vista, Cal., 0.32; Galt, Woodland and Ione, Cal., 0.33; Marysville, Cal., 0.35; Petakuma, Cal., 0.36; Niles, Cal., 0.37; Wells, Nev.; Salinas, Cal., and Shreveport, La., 0.38; Point San Jose, Cal., 0.42; Princeton, Cal., Silver City and La Mesilla, 0.43; Ft. Bridger, Wyo. Ty., 0.48; Sacramento and Suisun, Cal., 0.50.

*Rainy Days.*—The number varied in New England from 11 to 21; Middle Atlantic states, 11 to 18; South Atlantic states, 8 to 17; East Gulf states, 4 to 12; West Gulf states, 0 to 10; Ohio valley and Tennessee, 14 to 21; Lower Lake region, 10 to 17; Upper Lake region, 12 to 20; Upper Mississippi valley, 12 to 21; Missouri valley, 14 to 17; Extreme Northwest, 8 to 15; Northern Slope, 3 to 14; Middle Slope, 2 to 9; Southern Slope, 1 to 7; Rio Grande valley, 1 to 2; Southern Plateau, 0 to 7; Middle Plateau, 1 to 5; Northern Plateau, 3 to 20; North Pacific Coast region, 12 to 20; Middle and South Pacific Coast regions, 0 to 4.

*Cloudy Days.*—The number varied in New England from 4 to 14; Middle Atlantic states, 6 to 14; South Atlantic states, 0 to 17; East Gulf states, 1 to 8; West Gulf states, 0 to 3; Ohio valley and Tennessee, 0 to 12; Lower Lake region, 8 to 12; Upper Lake region, 5 to 11; Upper Mississippi valley, 5 to 16; Missouri valley, 3 to 12; Extreme Northwest, 6 to 13; Northern Slope, 3 to 10; Middle Slope, 0 to 3; Southern Slope, 0 to 2; Rio Grande valley, 0 to 2; Southern Plateau, 0 to 7; Middle Plateau, 0 to 4; Northern Plateau, 4 to 14; North Pacific Coast region, 14 to 20; Middle and South Pacific Coast regions, 0 to 7.

*Snow.*—Carson City, Nev., 7th, fell on mountains west of station during night; Ft. Bidwell, Cal., 7th. Bangor, Me., 16th; Mt. Washington, 21st; Pike's Peak, 2d, 4th, 5th; Ft. Benton, 9th, 11th, 22d.

*Hail-storms* were of frequent occurrence in various parts of the country, the most destructive being reported as follows: Franklin, N. H., 22nd, about 4 p. m., many hail stones were more than one inch in diameter; half the houses in the town had their windows shattered, and gardens everywhere were ruined. 28th, hail stones fell more than half an inch in diameter. Two thirds of the buildings in the town had their windows shattered; crops in the surrounding country suffered severely. A violent wind accompanied the storm, which uprooted trees, demolished chimneys and wrecked several buildings. Freight cars at the depot of the Northern Central railroad were blown from the track. Wichita, Kan., 24th, most destructive ever known here. A section of country ten miles wide and twenty miles long, in the Arkansas River valley, suffered very great damage. Thousands of acres of wheat, corn and oats were cut down level with the ground; even the prairie grass was mown clean, while orchards and grape-vines were stripped of their fruit. Washington, D. C., 27th, most violent for several years; storm came up rapidly and in the most threatening manner from the northwest, and continued about 40 minutes. Hail stones about the size of small hazel nuts; hundreds of sparrows killed, considerable window glass broken, and green-houses and vegetable gardens injured. Storm was entirely confined within the city limits, and passed from NW. to SE. Patchogue, Long Island, 23rd, very destructive; hail stones of unusually large size, destroying crops and a large amount of window glass. Andover, N. H. 28th, great loss to growing crops and window glass. Mill Creek, Union county, Ill., 2nd, ground covered to a depth of from two to four inches, and drifts eight to ten inches deep were reported from several localities. Wheat, corn and fruit crops entirely destroyed over a section two miles wide by ten miles long. Grant's Pass, Oregon, 9th, hail fell to the depth of several inches, and in many places drifted three to five feet deep; great destruction of property. Lewiston, Idaho, 3rd, 3 p. m., heaviest hail-storm ever experienced in this section, some hail stones measured six to eight inches in circumference. The destruction of window glass was very great, and in a number of places fields of grain were cut down as clean as if by machinery; direction of storm southwest to northeast; duration from eight to ten minutes. Asotin, Idaho, 3rd, remarkably heavy; large number of sheep killed; chickens, goslings, curlews, doves and other small birds were killed by the hundreds; storm lasted about ten minutes. Anna, Ill., 2nd, four miles west of station, most violent storm ever known; fruit, grain and vegetable farms nearly devastated; hail a foot deep in some places on the following morning. Lamar, Mo., 9th, hail stones size of goose eggs; windows broken in all parts of the town, and farm crops badly cut up. North Platte, Neb., 9th, several miles west of station, many hail stones reported to be fourteen and a half inches in circumference; in several places telegraph wires broken and roofs of houses punctured. 24th, all glass on the north and west sides of buildings destroyed; growing crops very badly damaged. Rome, Henry County, Iowa, 12th, violent hail and wind storm; several buildings unroofed, and great destruction to window glass and crops. Monteith, Guthrie county, Iowa, 12th, hail stones tearing shutters to pieces and breaking window glass; crops beaten into the ground, and much

stock and poultry killed. At Adair, very heavy hail; several buildings unroofed. At Casey, crops destroyed and buildings badly damaged. At Mento, City Hall unroofed, windows broken, farm crops ruined; almost impossible to estimate the damage. Avoca, Pottawattomie county, Iowa, 12th, 5,000 panes of glass broken; buildings otherwise damaged. In surrounding country calves, hogs, chickens and ducks were killed by the enormous hail; cattle and horses were terribly bruised; hail stones size of man's fist. In Auderbon and Cass counties, 12th, hail stones of remarkable size, and blown into drifts two to three feet deep; growing crops almost obliterated. Rockingham county, Va., 25th, near North Mountain, hail fell to a depth of six inches, the stones being of uncommon size, and remaining on the ground for twenty-four hours. Deadwood, Dakota, 6th, during the afternoon hail stones, size of hen's eggs, fell for over two hours; one stone was reported to have measured twenty-one inches in circumference. Cincinnati, Ohio, 13th, hail stones from two to six inches in circumference, and some reported to have been five inches in diameter; twenty minutes after the storm stones were picked up as large as goose eggs. Greenhouses and gardens damaged severely, and many thousand panes of glass broken; severest storm ever experienced. Abilene, Kansas, 9th, continued for about twenty minutes, causing great damage to window glass, trees and garden crops; in country loss to crops very heavy. Beloit, Kansas, 9th, very heavy, breaking window glass and destroying crops. Solomon City, Kansas, 9th, glass in the north windows of nearly all of the houses in the city were broken; hail stones as large as walnuts, and covering the ground to a depth of several inches. Chester, Ill., 2nd, hail stones nearly the size of goose eggs, doing great damage to gardens, trees and windows, and severely injuring persons and stock. Storm continued for fifteen minutes. Clinton, Ill., 2nd, great damage to fruit and growing crops. Storm continued for about ten minutes. Rockbridge, Ill., 2nd, hail stones one and a half inches in diameter; hundreds of acres of wheat completely torn to pieces, and not worth harvesting; fruit very badly damaged. Walnut Grove, Ill., 2nd, over 500 acres of growing wheat and young corn terribly cut up; large amount of window glass broken. White Hall, Ill., 2nd, most violent storm ever experienced; great destruction of wheat, corn, potatoes and fruit; a number of birds, chickens, and rabbits were found killed by the hail; direction of storm path northwest to southeast; length, about seven miles; width, one mile.

## RELATIVE HUMIDITY.

The percentage of mean relative humidity for the month ranges as follows: New England, from 64 to 90; Middle Atlantic states, 60 to 82; South Atlantic states, 55 to 83; East Gulf states, 60 to 80; West Gulf states 52 to 72; Ohio valley and Tennessee, 62 to 77; Lower Lake region, 66 to 77; Upper Lake region, 69 to 76; Upper Mississippi valley, 67 to 76; Missouri valley, 66 to 68; Extreme Northwest, 65 to 74; Northern Slope, 57 to 66; Southern Slope, 29 to 57; Rio Grande valley, 52 to 73; Southern Plateau, 18 to 25; Middle Plateau, 13 to 27; Northern Plateau, 37 to 48; North-Pacific coast region, 66 to 73; California, 36 to 77. *High stations* report the following percentages not corrected for altitudes: Pike's Peak, 48; Santa Fé, 20; Cheyenne, 33; Denver, 31; Mt. Washington, 78.

## WINDS.

The prevailing winds during the month of June, 1881, at Signal Service stations, are shown on chart No. II by arrows, which fly with the wind. Over the country east of the Mississippi and south of the Ohio, *southwest*. Over the the Lakes, *northerly*. Over the Middle Atlantic states and New England, *variable*. From Texas northward to Manitoba, *southeast* and *south*. Over the Plateau regions, *south* to *west*. Along the Pacific coast, *westerly*.

*Total Movements of the Air.*—The following are the *largest* total movements at Signal Service stations: Mt. Washington, 18,323 miles; Wilmington, 14,792; Portsmouth, 11,800; Hatteras, 11,420; Pike's Peak, 11,178; Ft. Sill, 10,418; San Francisco, 10,183; Kittyhawk, 9,717; North Platte, 9,450; Stockton, 9,441; Sandusky, 9,425; Chincoteague, 9,414; Delaware Breakwater, 9,344; Dodge City, 9,238; Ft. Elliott, 9,097; Macon, 8,977; Eagle Rock, 8,729; New Shoreham, 8,657; Cape Henry, 8,496; Thatcher's Island, 8,386; Barnegat, 8,260; Champaign, 8,082; Decatur, 8,067; Cape Henry, 8,029. The *smallest* are Lynchburg, 1,198; La Mesilla, 1,511; Phoenix, 1,780; Florence, 1,880; Lewiston, Idaho, 2,256; Duluth, 2,552; Roseburg, 2,687; Silver City, 2,737; Tucson, 2,821; Memphis, 2,829; Nashville, 2,860; Washington, D. C., 2,939; Augusta, 2,947.

*High Winds.*—Winds of 50 miles per hour and over were reported as follows: On summit of Mt. Washington, 3d, 5th, 6th, 10th, 14th to 20th, 27th, 29th; maximum velocity, 94 miles NW. 16th. On summit of Pike's Peak, 76, SW. 15th; North Platte, 24th, 25th, 28th; maximum velocity, 60, W. 25th; Ft. Keogh, 60, SW. 5th; Portsmouth, 60, NE. 22d; Sandusky, 57, NW. 29th; Yankton, 56, W. 28th; Dodge City, 56, NW. 25th; Thatcher's Island, 56, NE. 10th; Ft. Buford, 55, NW. 10th; Cape May, 53, W. 8th; Stockton, 52, SE. 28th; Ft. Stevenson, 50, SE. 15th; Delaware Breakwater, 50, NW. 8th; Chincoteague, 50, SW. 29th; Morgantown, 50, W. 29th.

*Local Storms.*—Storms of this character have not been unusually frequent or severe during the present month, although the loss of life and property has been very great. The most destructive were confined to the region known as the Lower Missouri valley, comprising the western portions